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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,556	10/16/2006	Nam-Seok Roh	8071-79 (OOP 050436 US)	7459

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EXAMINER

LAWSON, MATTHEW P

ART UNIT	PAPER NUMBER
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2871

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/527,556

Applicant(s)

ROH ET AL.

Examiner

Matthew P. Lawson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6 March 2007</u> . | 6) <input checked="" type="checkbox"/> Other: <u>KPA Ref.</u> |

DETAILED ACTION

Status of the Application

1. **Claims 1-11** are pending in this application.
2. If applicant is aware of any prior art or any co- pending application not already on record, the applicant is reminded of his/her duty under 37 C.F.R. §1.56 to disclose the same.

Priority

3. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.
4. Certified copies of the foreign priority documents have been received in this national stage application from the International Bureau.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 6 March 2007 was filed after the mailing date of the application on 11 March 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1-5 and 7** are rejected under 35 U.S.C. 102(e) as being anticipated by Hong et al. (Hong), US PGPub. No. 2004/0239837 A1.

8. The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

9. Regarding claim 1, Hong discloses a thin film transistor array panel comprising:

- a. an insulating substrate (10);
- b. a plurality of gate lines (22) carrying scanning signals, formed on the insulating substrate, and proceeding in a transverse direction;

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- c. a plurality of data lines (62) carrying image signals, proceeding in a longitudinal direction to intersect the gate lines, and insulated from the gate lines;
- d. a plurality of pixel electrodes (82) formed in respective pixels defined by intersections of the gate lines and the data lines and receiving the image signals; and
- e. a plurality of thin film transistors formed in the pixels and having gate electrodes connected to the gate lines, source electrodes connected to the data lines, and drain electrodes connected to the pixel electrodes, wherein a ratio of horizontal to vertical of each pixel is substantially equal to 2:3 (Figs. 1, 2; ¶ [0042-0043]).

10. Specifically, since Fig. 1 as disclosed by Hong is substantially similar to Fig. 1 of the instant application, Hong thereby discloses the ratio of horizontal to vertical of each pixel is substantially equal to 2:3.

11. Regarding claims 2 and 3, Hong further discloses storage capacitors formed by the overlap of the pixel electrodes and front (i.e. previous) gate lines (¶ [0046, 0055-0057]), as well as storage capacitors formed via storage capacitor lines separated from the gate lines, formed of the same layer as the gate lines, and overlapping the pixel electrodes (¶ [0046, 0069-0070]).

12. Regarding claim 4, Hong also clearly discloses a protective layer formed between the pixel electrodes and the gate lines and the data lines, made of acryl-based

organic insulating material or chemical vapor deposited insulating material having a dielectric constant equal to or less than 4.0, and having a plurality of contact holes for electrically connecting the pixel electrodes to the drain electrodes. (¶ [0020, 0054]; Claim 1).

13. Regarding claim 5, Hong also discloses the data lines to have a triple-layered structure including an amorphous silicon layer (30), an ohmic contact layer (55, 56), and a metallic layer (65, 66) (Fig. 2, ¶ [0048-0053]).

14. Regarding claim 7, Hong further discloses a data pad (68) connected to each data line (62) (¶ [0047]).

Claim Rejections - 35 USC § 103

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hong.

18. The applied reference (Hong) has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

19. Hong discloses a liquid crystal display comprising:
 - a. a first insulating substrate;
 - b. a plurality of gate lines carrying scanning signals, formed on the first insulating substrate, and proceeding in a transverse direction;
 - c. a plurality of data lines carrying image signals, proceeding in a longitudinal direction to intersect the gate lines, and insulated from the gate lines;
 - d. a plurality of pixel electrodes formed in respective pixels defined by intersections of the gate lines and the data lines and receiving the image signals;
 - e. a plurality of thin film transistors formed in the pixels and having gate electrodes connected to the gate lines, source electrodes connected to the data lines, and drain electrodes connected to the pixel electrodes; and
 - f. a ratio of horizontal to vertical of each pixel is equal to 2:3, as discussed under claim 1 above.
21. Hong further discloses red, blue and green pixels to be sequentially arranged in a row direction, the red and the green pixels alternately arranged in a column direction, the blue pixels repeatedly arranged in the column direction, and four red and green pixels surround adjacent two blue pixels in neighboring two pixel rows facing each other (Fig. 1).
22. Hong fails to expressly disclose:
 - a. a second insulating substrate facing the first insulating substrate;
 - b. a black matrix formed on the second insulating substrate;

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- c. red, green and blue color filters formed on the black matrix and provided at the respective pixels;
- d. a common electrode formed on the color filters; and
- e. a liquid crystal layer sandwiched between the pixel electrode and the common electrode.

23. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a second insulating substrate, color filters, a black matrix, common electrodes formed on the color filters, and a liquid crystal layer as claimed, in the liquid crystal display of Hong, because it would have been well known in the art at the time of the invention to include those objects in a liquid crystal display device, in order to, for example, effect a functioning, high-contrast, color liquid crystal display.

24. **Claims 6, 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hong, as applied to claims 1 and 8 above, in view of Song, US Pat. No. 6,614,492 B1.

25. Regarding claims 6 and 9, Hong teaches a thin film transistor array comprising pixel electrodes and a liquid crystal display comprising pixel electrodes as well as common electrodes, as discussed under claims 1 and 8 above.

26. Hong fails to teach or suggest each pixel electrode to have a first cutout, the common electrode to have a plurality of second cutouts, and each pixel to be partitioned into a plurality of domains by the first and the second cutouts.

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27. However, Song expressly teaches the desirability of openings (i.e. cutouts) in electrodes which align the liquid crystals in different directions (i.e. in a plurality of domains) (Song, col. 1, lines 18-29; Fig. 1).

28. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include cutouts in the pixel and the common electrodes, as taught by Song, in the liquid crystal display and TFT array panel of Hong, in order to achieve a high contrast and a wide viewing angle in the liquid crystal display device (Song, col. 1, lines 18-29).

29. Regarding claim 10, claim 9 is unpatentable over the combination of Hong and Song as discussed above.

30. Hong fails to teach the liquid crystal molecules to be aligned perpendicular to the first and second substrates in the absence of an electric field between the pixel and common electrodes, i.e. to be vertically aligned.

31. However, Song expressly teaches the desirability of vertically aligned liquid crystal molecules in conjunction with cutouts in the electrodes (Song, col. 1, lines 18-29; Fig. 1).

32. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use vertically aligned liquid crystals in the liquid crystal display of Hong, in order to achieve a high contrast and a wide viewing angle in the liquid crystal display device (Song, col. 1, lines 18-29).

Cited Prior Art

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. For example:

- i. Korean Patent Abstract No. 10-2003-0086157 A discloses a liquid crystal display device wherein a ratio of horizontal to vertical of each pixel is substantially equal to 2:3.

Conclusion

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew P. Lawson whose telephone number is 571-272-9795. The examiner can normally be reached on Monday through Thursday from 8:00am to 6:00pm EST.

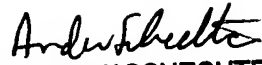
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms, can be reached at 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew P. Lawson,
Examiner

MPL


ANDREW SCHECHTER
PRIMARY EXAMINER